

REMARKS/ARGUMENTS

The Examiner rejects claims 4, 27, 28, 33, and 35 under 35 U.S.C. § 112, second paragraph, as being indefinite.

The claims have been amended to overcome this rejection.

The Examiner provisionally rejects claims 4-7 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 14, 16, 19, and 20 of copending application No. 11/036887. The Examiner's reasoning is that although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been readily obvious to one of ordinary skill in the art to employ bicomponent fibers for the flock fibers.

Applicant disagrees.

Regarding claims 4, 6 and 7, the limitation that the fibers "comprise at least about 25 wt.% of a terephthalate polymer or copolymer" is not found in any of claims 14, 16, 19 and 20 of the '887 application, and the Examiner provides no reasoning why it would be obvious to modify any of claims 14, 16, 19 and 20 to have such a limitation.

Further, regarding claim 5, in addition to the previous deficiency, the limitations that the "polymer has a glass transition temperature of at least about 75 degrees Celsius, wherein the fibers are oriented transversely to an adhesive film contacting ends of the fibers, and wherein the fibers are free-standing" are not found in any of claims 14, 16, 19 and 20 of the '887 application, and the Examiner provides no reasoning why it would be obvious to modify any of claims 14, 16, 19 and 20 to have such limitations.

The Examiner provisionally rejects claims 4-9, 34-35, 38 and 40 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13-19 and 24 of copending application No. 11/139439. The Examiner's reasoning is that although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been readily obvious to one of ordinary skill in the art to employ bicomponent fibers for the flock fibers.

Applicant again disagrees.

Regarding claims 4, 7, 8, 35 and 38, the limitation that the fibers "comprise at least about 25wt% of a terephthalate polymer or copolymer" is found in claim 13 which refers back to independent claim 6 of copending U.S. Application No. 11/139,439. However, neither claim 6 nor 13 include the limitation of present claim 4 that "the fibers are at least one of drawn and heat set at a temperature at or above the maximum flock temperature during sublimation printing." Conversely, while the limitation of claim 4 that the fibers are "heat set at a temperature at or above the maximum flock temperature during sublimation printing" is essentially found in claims 16 and 17, these claims do not include the limitation of present claim 4 that the fibers "comprise at least about 25wt% of a terephthalate polymer or copolymer". In sum, independent claim 6 and dependent claims 13, 14 and 15 do not include both the limitation that the fibers "comprise at least about 25wt% of a terephthalate polymer or copolymer" AND the limitation that "the fibers are at least one of drawn and heat set at a temperature at or above the maximum flock temperature during sublimation printing." Additionally, independent claim 16 and dependent claims 17, 18, 19 and 24 do not include both the limitation that the fibers "comprise at

least about 25wt% of a terephthalate polymer or copolymer” AND the limitation that “the fibers are at least one of drawn and heat set at a temperature at or above the maximum flock temperature during sublimation printing.” The Examiner cannot just pick and choose claims of the reference that happen to have features similar to the claims of the present invention which depend back to *different* independent claims in the reference.

Regarding claim 5, in addition to the deficiency with respect to claim 4, the limitations that the “polymer has a glass transition temperature of at least about 75 degrees Celsius, wherein the fibers are oriented transversely to an adhesive film contacting ends of the fibers, and wherein the fibers are free-standing” are not found in any of claims 13-19 or 24 of the ‘439 application, and the Examiner provides no reasoning why it would be obvious to modify any of claims 13-19 or 24 to have such limitations.

Regarding claim 6, in addition to the deficiency with respect to claim 4, the limitations that the “the fibers have a percent elongation of at least about 25%, a compression recovery (from 34.5 mPa) of at least about 30%, and a deflection temperature at 18.8 kg/square cm of at least about 215 degrees Celsius” are not found in any of claims 13-19 or 24 of the ‘439 application, and the Examiner provides no reasoning why it would be obvious to modify any of claims 13-19 or 24 to have such limitations.

Regarding claim 9, in addition to the deficiency with respect to claim 4, the limitation that “the fiber-containing surface comprises the plurality of fibers adhered to a hot melt surface” is not found in any of claims 13-19 or 24 of the ‘439 application, and the Examiner provides no reasoning why it would be obvious to modify any of claims 13-19 or 24 to have such limitations.

Regarding claim 34, in addition to the deficiency with respect to claim 4, the limitation that “the fiber-containing surface comprises a thermosetting adhesive, wherein before the sublimation printing step, the thermosetting adhesive is not thermoset, and wherein the thermosetting adhesive is thermoset during the sublimation printing step” is not found in any of claims 13-19 or 24 of the ‘439 application, and the Examiner provides no reasoning why it would be obvious to modify any of claims 13-19 or 24 to have such limitations.

Regarding claim 40, in addition to the deficiency with respect to claim 4, the limitation of “laminating together the adhesive film and the fiber-containing surface, wherein the contacting step is after the sublimation printing step” is not found in any of claims 13-19 or 24 of the ‘439 application, and the Examiner provides no reasoning why it would be obvious to modify any of claims 13-19 or 24 to have such limitations.

The Examiner provisionally rejects claim 4 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 12 of copending application No. 10/613982.

Applicant disagrees with this rejection. Copending U.S. Application No. 10/613,982 is now abandoned; thus, the Examiner must withdraw this rejection.

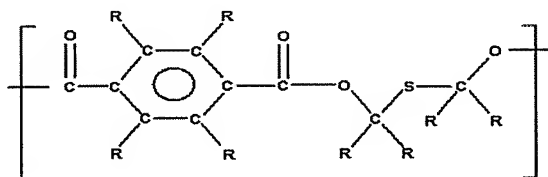
The Examiner rejects claims 4-10 and 27-41 under 35 U.S.C. 103(a) as being obvious over U.S. Patent number 6,977,023 to Abrams.

Applicants respectfully traverse the Examiner’s rejection.

Abrams fails to teach or suggest at least the following italicized features of the pending independent claims:

1. An article, comprising:
a substrate;
a permanent adhesive; and
a plurality of flock fibers adhered by the permanent adhesive to the substrate, *wherein the fibers comprise poly(cyclohexylene-dimethylene terephthalate)*, wherein the fibers are oriented transversely to the adjacent surface of the substrate, and *wherein the fibers are heat set, and/or drawn at a temperature of at least about 180°C.*

4. A method for forming an article, comprising:
providing a fiber-containing surface, *wherein the fibers of the fiber-containing surface comprise at least about 25 wt.% of a terephthalate polymer or copolymer having a repeating unit having the formula:*



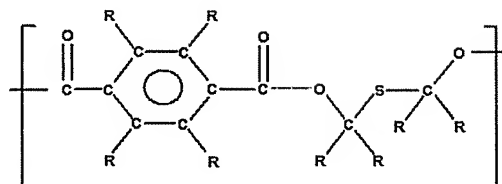
where "R" represents hydrogen or independently a substituted or unsubstituted alkyl or aryl group and "S" is an aromatic or nonaromatic cyclic residue which can include one or more heteroatoms; and

sublimation printing the fiber-containing surface to form a printed article, wherein the fibers are at least one of drawn and heat set at a temperature at or above the maximum fiber temperature during sublimation printing.

11. A method for providing a molded article comprising:
providing a fiber-containing surface, *the fiber-containing surface comprising a polymer that is at least one of a terephthalate polymer, poly(phenylene sulfide), liquid crystal polymer, and polyamide;*

sublimation printing the fiber-containing surface to form a printed article;
forming the printed article into a three dimensional shape;
positioning the formed printed article in a mold; and
introducing a resin into the mold to form a molded article.

19. A method for forming a molded article, comprising:
providing a fiber-containing surface, *the fiber-containing surface comprising a terephthalate polymer having a repeating unit of the formula:*



where "R" represents hydrogen or independently a substituted or unsubstituted alkyl or aryl group and "S" is an aromatic or nonaromatic cyclic residue which can include one or more heteroatoms;

*forming the fiber-containing surface into a three dimensional shape;
 positioning the formed fiber-containing surface in a mold; and
 introducing a resin into the mold to form a molded article.*

45. A method for providing a printed article comprising:
 providing a fiber-containing surface having a plurality of fibers, *the fibers comprising a polymer that is at least one of a polyester, a poly(phenylene sulfide), a liquid crystal polymer, and a polyamide;* and

sublimation printing the fiber-containing surface to form a printed article, wherein during sublimation printing the fiber-containing surface is heated to a sublimation printing temperature and wherein the polymer has a melting point greater than the maximum sublimation printing temperature, and wherein at least one of the drawing temperature and the heat set temperature of the polymer is at or above the maximum sublimation printing temperature.

The use of sublimation printing of flock has generally not been widely practiced for various reasons. Some polyesters, such as poly(ethylene terephthalate), can hold the dye but have little loft retention and flatten out during sublimation printing. Other polyesters typically melt or soften and deform under the high temperatures experienced during sublimation printing, losing desirable tactile characteristics (soft touch). Nylon and rayon fibers, though having loft retention, generally are unable to accept the vaporized dye consistently and/or permanently and therefore produce an irregular and/or unstable colored product. Abrams discloses, as flock, only ylon, polyamide, and polyester. (Col. 9, lines 39-42.)

An embodiment of the present invention can overcome these problems by using thermally stable polymers, particularly poly(cyclohexylene-dimethylene terephthalate) ("PCT"), in flock the fibers. Because of its high thermal stability, PCT can withstand the high temperatures of sublimation printing and molding.

Abrams '023 generally teaches various methods of forming decorative transfers via resin dispersion 16 on a carrier 4. In one method, a release adhesive 6 is applied to the upper surface of the carrier 4 for accepting the resin dispersion 16. Thereafter, a decorative medium 24 such as flock can be electrostatically transferred to the ungelled resin dispersion. The resin dispersion and attached flock are then heated or cured to form fused resin film 28. The carrier 4 can then be peeled away from the resin film to leave a decorative transfer. The flock can be rayon, and other types of conductive material such as nylon, polyamide, polyester, and similar synthetic fibers, with nylon being preferred (column 9, lines 39-42). To form designs on the decorative media, Abrams teaches that the decorative media can be a dyeable flocking material such as a white polyester or other synthetic fiber. The flock is then sublimation printed by adding dye to the flock and then heating the dye and the fibers until the fibers accept the vaporized dye (column 14, lines 5-26). Abrams fails to teach the use of poly(cyclohexylene-dimethylene) as the flock material, drawing or heat setting the fibers at or above the maximum flock temperature during sublimation printing, sublimation printing of flock, or making the flocked transfer into a molded article.

In attempting to overcome Abrams' lack of any disclosure of using PCT for the flock material, the Examiner relies on *In re Leshin* to state "it would have been readily obvious to one of ordinary skill in the art to select a polyester having the claimed formula (i.e. PCT) since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use". However, the Examiner's use of *In re Leshin* is completely misplaced. In *In re Leshin*, the applicant constructed parts of his air-tight container-dispenser of plastic which the applicant conceded was well-known. However, the applicant opined that doing so was patentable since the applicant had a particular purpose for utilizing plastic, which was presumably a different purpose than previous air-tight container-dispensers. In upholding the rejection of the claim at issue, the Court stated that "mere selection of a known plastics to make a container dispenser *of a type made of plastics prior to the invention* (emphasis added), the selection of the plastics being on the basis of suitability for the intended use, would be entirely obvious." *In re Leshin*, 277 F.2d 197, 199 (C.C.P.A. 1960).

There is absolutely no indication in Abrams '023 that, *prior to* the present invention, the flock has been sublimation printed or made into a molded article, let alone that the clock could be made out of PCT. Without citing any supporting reference, the Examiner merely states "PCT is known to have good resiliency and thermal stability". This is impermissible hindsight based on use of the applicant's disclosure.

Additionally, the applicant has recognized many unique advantages in using PCT for the fiber of a fiber containing surface subsequently sublimation that have not been previously recognized. For instance, in comparison to polyethylene terephthalate ("PET"), and due to

PCT's higher melt point and greater loft and loft retention, PCT will not flatten as much as PET, if at all. Moreover, nylon and rayon fibers will not accept sublimation dyes as well as PCT (page 9, lines 21-23). Thus, claims 4-7 and 27-41 are patentable for at least the above reasons.

Further regarding claim 4 of the present invention, and with respect to the fibers being at least one of drawn and heat set at a temperature at or above the maximum flock temperature during sublimation printing, the Examiner merely states (without any supporting references or case law) that "said temperatures could readily be determined by one skilled in the art based upon the materials selected for the flock transfer of Adams." Again, this is impermissible hindsight. With respect to page 8 of the present invention, drawing or heat setting the fibers at or above the maximum flock temperature during sublimation printing "locks in" the resiliency of the PCT fibers in addition impacting the strength, elasticity and dye-ability of the PCT fibers.

Using the Examiner's line of reasoning, any invention under the sun would be obvious to one skilled in the art. However, a proper rejection under 35 U.S.C. 103(a) requires more. To establish a prima facie case of obviousness, an Examiner must establish, among other elements, that there is some motivation or suggestion either *in the references or in the knowledge generally available to one of ordinary skill in the art* to modify the reference. MPEP §. 706.02 (j). As previously described, there is absolutely no teaching in Abrams '023 or elsewhere in the art to use PCT in a fiber containing surface subsequently sublimation printed, much less drawing or heat setting the fibers at a temperature at or above the maximum flock temperature during sublimation printing.

Accordingly, the pending claims are allowable.

Application Serial No. 10/614,340
Reply to Office Action of May 18, 2006

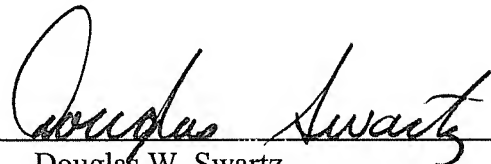
The dependent claims provide further reasons for allowance.

By way of example, the Examiner has rejected claims 5-10 and 27-41 along a similar line of reasoning as the features thereof just being either “readily obvious to one of ordinary skill in the art” or “inherent to the flock fibers comprising PCT”. Because each of claims 5-10 and 27-41 includes all the features of claim 4, each is patentable for at least the above reasons.

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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Date: August 18, 2006